

We Claim:

1. A valve device comprising:
 - a valve housing;
 - an inlet side joint port and an outlet side joint port, both opened at an outer surface of the valve housing;
 - a valve port formed in the valve housing; and
 - a valve element formed in the valve housing for opening and closing the valve port when the valve element moves in an axial direction thereof, the valve element including a valve shaft supported slidably in the axial direction by the valve housing at one side of the valve element, the valve shaft being connected to driving means for driving the valve element,

wherein one side of the valve port communicates with the inlet side joint port through an inlet side inner passage formed in the valve housing, while an opposite side of the valve port communicates with the outlet side joint port through an outlet side inner passage formed in the valve housing,

wherein the inlet side inner passage includes a bent part in the valve housing so that a pressure at the inlet side joint port acts on the valve shaft of the valve element from a lateral direction of the valve shaft.
2. A valve device comprising:
 - a valve housing;
 - an inlet side joint port and an outlet side joint port, both opened at an outer surface of the valve housing;
 - a first valve port and a second valve port, both formed in the valve housing on the same axis having a distance therebetween in an axial direction thereof; and
 - a valve element formed in the valve housing including integrally a first valve part for opening and closing the first valve port and a second valve part for opening and closing the second valve port when the valve element moves in an axial direction thereof, the valve element including a valve shaft supported slidably in the axial direction by the valve housing at one side of the valve element, the valve shaft being connected to driving means for driving the valve element,

wherein each one side of the first and second valve ports communicates with the inlet side joint port through an inlet side inner passage formed in the valve housing, while each opposite side of the first and second valve ports communicates with the outlet side joint port through an outlet side inner passage formed in the valve housing and the valve element,

wherein the inlet side inner passage includes a bent part so that a pressure at the inlet side joint port acts on between the first valve part and the second valve part of the valve element.

3. A valve device comprising:

a valve housing;

an inlet side joint port and an outlet side joint port, both opened at an outer surface of the valve housing;

a first valve port and a second valve port, both formed in the valve housing on the same axis having a distance therebetween in an axial direction thereof; and

a valve element formed in the valve housing including integrally a first valve part for opening and closing the first valve port and a second valve part for opening and closing the second valve port when the valve element moves in an axial direction thereof, the valve element including a valve shaft supported slidably in the axial direction by the valve housing at one side of the valve element, the valve shaft being connected to driving means for driving the valve element,

wherein each one side of the first and second valve ports communicates with the inlet side joint port through an inlet side inner passage formed in the valve housing, while each opposite side of the first and second valve ports communicates with the outlet side joint port through an outlet side inner passage formed in the valve housing and the valve element,

wherein the inlet side inner passage includes a by-pass passage so that a pressure at the inlet side joint port acts on between the first valve part and the second valve part of the valve element.